



RESEARCH

Cariboo Forest Region

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EXTENSION
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Mushroom Harvesting in the Cariboo Forest Region

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INTRODUCTION

The economic and social significance of mushroom harvesting has not been well documented in the B.C. Interior. This is changing, however, as many species of mushrooms are currently harvested in the Cariboo Forest Region for private use, commercial sale, or both.

Many of these species of mushrooms are an integral part of the forest environment. They are often the fruiting bodies of *mycorrhizal* fungi living in symbiosis with plants. Mushrooms may also be *saprophytic* (which recycle dead organisms) or *disease* fungi; all play important roles in forest ecosystems. Several fungi associated with grasslands are also harvested.

BIOLOGICAL SIGNIFICANCE

Mushrooms are the fruiting bodies of fungi. The main body

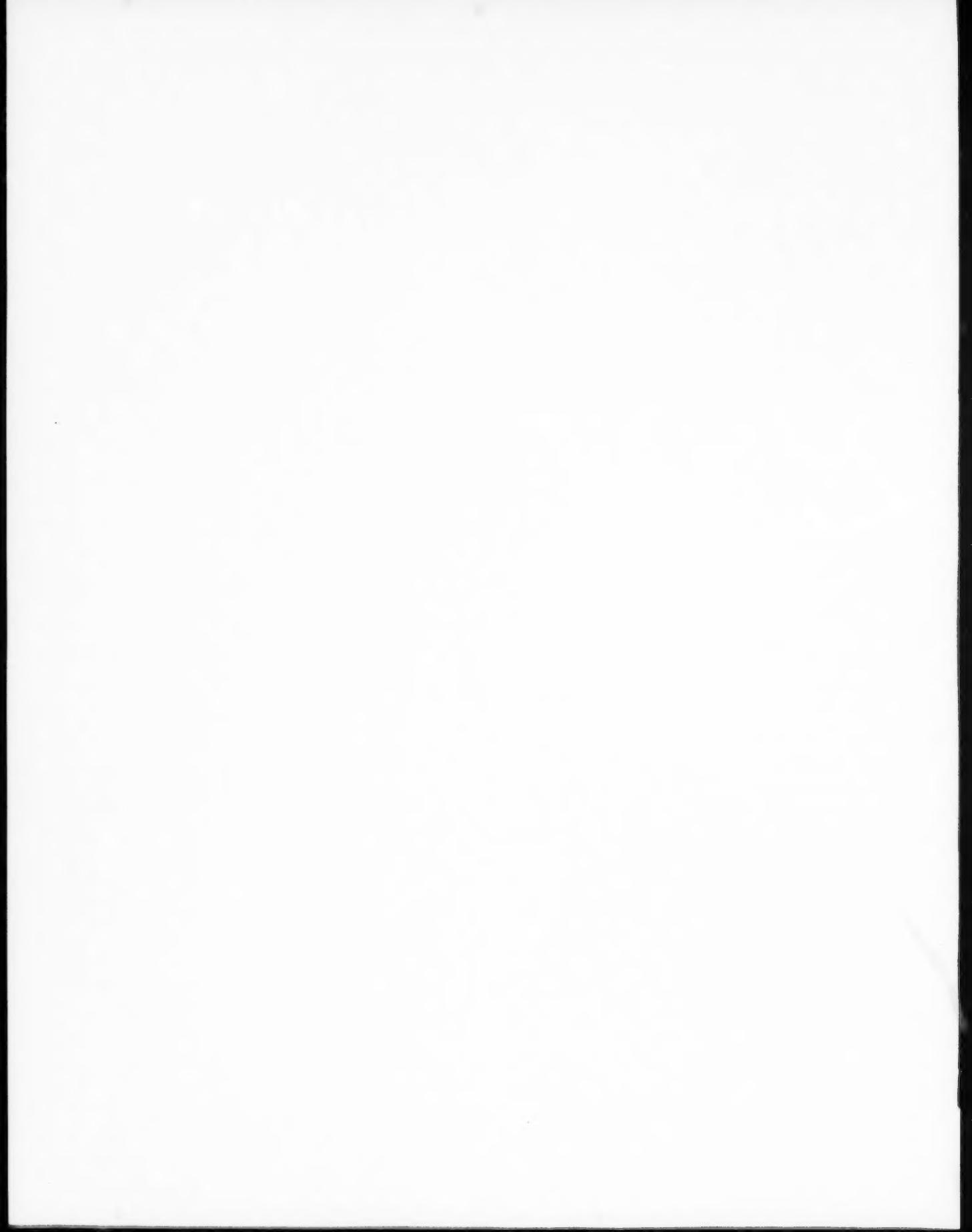
of a fungus is found in the forest floor and mineral soil surface. Fungi are usually the largest category of organisms in the forest floor other than tree roots. In many forest environments they are the most active decay organisms: they accelerate the breakdown of dead material and consequently, the rate of nutrient cycling. Mycorrhizal fungi help trees and other plants take up moisture and nutrients, adapt to their micro-environment, and protect roots from many natural pests. Most trees will not grow in a natural environment without their fungal symbiont.

Fungi are also an excellent food source, often with 25-30% protein content. They provide a wide range of minerals and vitamins, but the total nutrient content varies considerably among species. Some animals, such as flying squirrels, use mushrooms as their major food source, and almost all forest herbivores and omnivores consume them to some degree.

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A diverse fungal population contributes to a diverse diet for wildlife and humans.

MUSHROOM SPECIES

Some of the important mushrooms harvested in the Cariboo Forest Region include:

Tricholoma magnivelare

The **pine mushroom** is associated with Douglas-fir, hemlock and lodgepole pine forests. It is harvested largely for export to Japan and is extremely valuable, with a well developed grading and marketing system. Prices fluctuate, depending on crops in Korea and China, but may exceed \$400 per kilogram for top grade mushrooms.

The pine mushroom is most likely the fruiting body of a mycorrhizal fungus but its biology is poorly understood. Harvesting practices must not destroy the body of the fungus on which the mushrooms form, in order to maintain future harvests.

Morchella spp

The **morels**, or **May mushrooms**, are saprophytic woodland fungi that live by decaying forest floor material. They are collected for both local consumption and export to Europe. They grow early in the field season and can fruit in great abundance for a few years following forest fires, when they can have considerable economic importance.

Gyromitra esculenta

The **brain mushroom** is harvested for export to Scandinavian countries. It is also saprophytic and is a poisonous mushroom that must be handled properly before consumption. It is rarely consumed

locally and its value as an export crop has recently been quite low. It often fruits in abundance on logged areas.

Calvatia booniana

The **giant western puffball** is sold and consumed locally. It is a grassland fungus that can reach sizes of over 30 kg and probably has good potential for increased marketing within Canada.

Boletus edulis

This very popular mycorrhizal fungus fruits in the late summer and is found under a variety of tree species. It is consumed worldwide and could probably be marketed from the Cariboo.

Pleurotus ostereatus

The **oyster mushroom** grows abundantly locally on rotting aspen. It is currently grown commercially and sells for \$11-15 per kilogram. It could also probably be harvested commercially in this region if a market was developed.

Several other mushrooms are harvested locally. Some, such as *Armillaria ostoyae* and *Suillus tomentosus*, fruit in sufficient numbers to be developed into commercial crops if a market could be created. Others, such as *Coprinus comatus* (**shaggy mane**) and various *Agaricus* spp., are probably too fragile to be exported but grow in sufficient abundance to provide an important local food supplement. Many other mushrooms are harvested in relatively less abundance, including various species of *Leccinum*, *Boletus* and *Suillus*.

There are also species of fungi in the area with special applications, such

as *Ganoderma* spp., which is harvested for medicinal uses, and *Phaeolus schweinitzii*, which is used for dyeing cloth. Apparently these fungi are not currently harvested in this region but possibly could be with public education.

ECONOMIC SIGNIFICANCE

Mushroom harvesting is currently unregulated in British Columbia, so the value of the harvest is unknown. However, the size of the mushroom crop here suggests that it could potentially be very high. For example, the value of the pine mushroom crop alone may be at least several million dollars.

Oregon mushroom exports in 1990 were estimated at \$35 million. The mushroom-picking workforce in B.C. is smaller than in Oregon, with approximately 2000 mushroom pickers here. The Pine Mushroom Task Force has recommended a strategy to regulate mushroom harvesting in British Columbia.

Many of the mushroom species harvested have fairly specific requirements with regard to such factors as soil conditions, forest age and type, and climate. Practices to conserve biodiversity are consistent with maintaining diverse fungal populations. A wide variety of forest and grassland ecosystems of various ages and in contiguous clusters will conserve fungal diversity and enhance opportunities for commercial harvesting of mushrooms.

CONTACT

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